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Claim No: IP-2021-000013

**IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
INTELLECTUAL PROPERTY ENTERPRISE COURT**

Date: 15 Jun 2022

**NICHOLAS CADDICK QC
(sitting as a Deputy High Court Judge)**

B E T W E E N:

VERNACARE LIMITED

Claimant

- and -

MOULDED FIBRE PRODUCTS LIMITED

Defendant

MICHAEL HICKS and JAMIE MUIR WOOD (instructed by **W P Thompson**)
for the Claimant
TOM ALKIN (instructed by **Walker Morris**) for the Defendant

Hearing dates: 13th, 14th and 15th June 2022

JUDGMENT

Nicholas Caddick Q.C. (sitting as a Deputy High Court Judge):

Introduction

1. In this action the Claimant, Vernacare Limited (“Vernacare”), claims that its patents, GB 2446793 (the “793 Patent”) and GB 2439947 (the “947 Patent”) have been infringed by the Defendant, Moulded Fibre Products Limited (“MFP”).

2. The Patents were both filed on 31 July 2006. They relate to an open topped washbowl made from moulded paper pulp as used in hospitals, care homes and nursing homes where patients are confined to their beds or find it difficult to get to a bathroom to wash themselves. The products with which the Patents are concerned are intended to be used once and then disposed of in a macerator. As set in greater detail below, the 793 Patent is concerned with the shape (or configuration) of such washbowls whereas the 947 Patent is concerned with their composition.
3. Vernacare's case is that MFP's washbowl ("the MFP washbowl", pictures of which are in Annex 1 to this judgment), which is also made from moulded paper pulp, infringes its Patents.
4. In the case of the 793 Patent, MFP denies that the MFP washbowl falls within the claims of the Patent and it also asserts that the Patent is invalid. This invalidity argument was in the nature of a squeeze, namely that for the MFP washbowl to fall within the claims of this 793 Patent, those claims would have to be construed so widely as to cover matters that were common general knowledge thereby making the 793 Patent invalid for obviousness.
5. In the case of the 947 Patent, at trial, MFP accepted that its washbowl falls within claims 1, 3, 9 and 12. Its defence is that the 947 Patent is invalid for being obvious over two pieces of prior art:
 - a. A Japanese Patent Application, No.JPH7-137726, published on 30 May 1995 and entitled "Simple food container", referred to by its inventor's name "Shimooka"; and
 - b. A Japanese Patent Application, No.JPA9-183429, published on 15 July 1997 and entitled "Oil-resistant and water resistant simple food container", referred to by its inventor's name "Sugimoto".
6. In response to MFP's obviousness claims, Vernacare asserts that there had been a long felt want for a product made according to its Patents and that its washbowl has enjoyed considerable commercial success.
7. In earlier proceedings (*Vernacare Limited v Environmental Pulp Products Limited* [2012] EWPC 41 – "the EPP Proceedings") brought by Vernacare against a different defendant, but concerning only the 793 Patent, HHJ Birss QC decided that the 793 Patent was valid and was infringed by two versions of a bowl manufactured by that defendant but not by a third version ("version 3"). It is common ground that the findings of fact made by HHJ Birss QC in the EPP Proceedings are not relevant to the present case as they involved a different defendant, related to different products and were based on different evidence. However, his findings on matters of law (including issues of construction of the 793 Patent) are relevant in that, whilst they are not binding, the usual practice is for one judge to follow another judge's findings on such matters unless

convinced that those findings were wrong (see *E. Mishan v Hozelock* [2019] EWHC 991 per Nugee J at [40]).

The witnesses

8. Each party called four witnesses, two experts and two factual.
9. Vernacare's expert witnesses were Martin Waller who gave evidence with regard to the 793 Patent and Dr George Kellie whose evidence dealt with the 947 Patent. MFP's experts were Gary Visser and Professor Ulrich Hirn, who gave evidence, respectively, with regard to the 793 Patent and the 947 Patent. All of these experts were doing their best to assist the court and I found their evidence to be helpful and informative.
10. The factual witnesses for Vernacare were Jay Turner-Gardner and Lindsay Dobson. Ms Turner-Gardner was, as at 2006, a senior infection prevention nurse at Trafford General Hospital. Her evidence related to the issues of long felt and commercial success and covered, in particular, the circumstances surrounding the development of Vernacare's washbowl. Ms Dobson is now Vernacare's Assistant Company Secretary but in 2006 she had been the personal assistant to Vernacare's CEO. Her evidence was in relation to the issue of commercial success.
11. MFP's factual witnesses were Chris Hogarth and Jan Van Est. Mr Hogarth had worked in the moulded paper pulp industry from around 1986 until 2013, initially for Robert Cullen and Sons Ltd and, from 2009, for Environmental Pulp Products Limited (the defendant in the EPP Proceedings referred to above). Mr Van Est had worked for Vernacare from 2007 until May 2010. He then worked in other sectors until 2016 when he joined MFP. His evidence, like that of Mr Hogarth related to the issues of long felt and commercial success.
12. It was common ground (rightly) that each of these factual witnesses was doing his or her best to assist the court and, ultimately, the question was the extent to which their evidence was really of assistance in relation to the issues of long felt and commercial success. I will return to this later in this judgment.

Technical background

13. Before dealing with the identity of the skilled person for the purposes of the Patents in issue, it is worth saying something about the technical background with regard to moulded paper pulp products.
14. The moulded paper pulp sector is a branch, albeit a small branch,¹ of the wider paper and paper board industry and shares much of the same technical background. Both start with the pulping of wood chips or of recycled paper using hot water, high energy and high shear mixing. The resultant pulp is

¹ Dr Kellie's estimate was less than 2%

washed and various chemicals can be added. Where the intended product is paper or paperboard, the resultant slurry pulp mix is run over wire mesh belts to form the paper web which is then pressed, dried and reeled up. If, however, the intended product is an article, the pulp mix is compressed against a shaped screen so that the pulp is moulded to the required shape before being dried. In order that the product can be easily removed from the mould, the mould is designed not to have negative angles and so that “vertical” sections are on an angle of between 3° and 7°.

15. The chemicals added to the wet pulp are known as ‘wet end’ or ‘internal’ additives to distinguish them from ‘dry end’ surface treatment of the finished article. Some wet end chemicals, known as “process chemicals” (or “control additives”), assist in the manufacturing process. Examples of these are biocides which control microbial growth in the pulp stock and de-foamers which control foaming.
16. Other wet end chemical additives are functional in that they produce properties that are desirable in the end product. Examples of these are “binding agents” or “binders” which enhance the structural tensile strength of the moulded paper pulp product and “sizing agents” or “sizers” which make the product more resistant to penetration by liquids.
17. For many years, the sizing agent used to achieve water resistance was an emulsified ‘rosin’ - a hydrophobic resin. However, the residual acid in rosin sized paper tended to cause paper to degrade over time and this led in the 1980s to the development (which Dr Kellie described as “ground changing”) of sizing agents that bond to cellulose under neutral or slightly alkali conditions. Such agents included alkyl ketene dimer (“AKD”) and alkyl succinic anhydrides (“ASA”) which have largely replaced rosin sizing agents, at least in economically developed countries.
18. Another form of sizing was to provide increased resistance to penetration by oil, oil/water mixtures and grease. Dr Kellie explained that from the 1950s this was achieved by adding fluorocarbons to the pulp mix and such forms of sizing were of particular use in relation to paper used for food packaging (such as grease proof paper) (although Dr Kellie personally did not recommend their use for such purposes).
19. One of the issues in the present case concerns sizing to help prevent penetration by a detergent. It was common ground that the presence of a detergent (including a soap) within a liquid increases the ability of that liquid to penetrate into a moulded paper pulp product thereby weakening its structure and causing it to disintegrate.² It was also common ground that, as a matter of fact, the use of a fluorocarbon sizing agent increases paper’s resistance to penetration by

² Dr Kellie (report at [51]) and Professor Hirn (second report at [2.5]) provide different technical explanations for this. However, for present purposes, I do not need to resolve that difference.

detergents. What was not common ground was the extent to which this latter fact was something that would have been within the common general knowledge of the skilled person in the moulded paper pulp sector or even in the wider paper and paperboard industry as at 2006.

The Skilled Person

20. A patent is directed at the skilled person (or, more fully, the person skilled in the relevant art) and issues of construction of a patent and whether its claims are inventive or obvious are addressed through the eyes of such person.
21. The skilled person is a notional person (or, in some cases, a team of notional persons) with a practical interest in the subject matter of the invention and with practical knowledge and experience of the kind of work in which the invention is to be used. Whilst the skilled person is a notional person, the skills attributed to such person must be those that real life people skilled in the relevant art would in fact have had as at the priority date (here, July 2006).
22. In the present case, the relevant “art” is the making of moulded paper pulp products. Given this, it is common ground that the skilled person (or team) would have a range of complementary knowledge and skills relating not only to the design of such products but also to the moulding techniques and the formulation of the pulp compositions used to make them. Indeed, as Mr Alkin points out, the Patents assume that this is the case in that the 793 Patent focusses primarily on the design of a washbowl but says nothing about moulding techniques or pulp formulation, whilst the 947 Patent focusses on matters of pulp composition but says nothing about design or moulding techniques. What is in issue is the precise extent of the knowledge to be attributed to the skilled person.
23. Vernacare’s case is that the skilled person (or team):
 - a. is a designer of single use maceratable paper pulp products;
 - b. understands how such products would be stored, used and disposed of in, for example, hospitals;
 - c. has an understanding of the moulding techniques needed to achieve particular shapes;
 - d. does not have a particularly broad chemistry background or knowledge, but has a working knowledge of the ingredients typically used in the pulp formulations used to make moulded paper pulp products (including the sizing agents, binding agents and biocides that were in use in the moulded paper pulp sector);
 - e. would be interested in the wider world of paper pulp products but would, in general, be unlikely to question the status quo with regard to matters of pulp composition used in the moulded paper pulp sector; and
 - f. would, if a technical issue arose regarding, in particular, pulp formulation, seek specialist advice.

24. So far as the 793 Patent is concerned, it seems that MFP broadly accepts this characterisation of the skilled person (referred to as “person 1” by Dr Kellie and as “the Skilled Engineer” by Mr Alkin). However, MFP argues that the position is different in relation to the 947 Patent. It argues that the skilled person (or team) for the 947 Patent would include a “Skilled Paper Chemist” – someone with a Bachelor’s degree in chemistry or process engineering and, possibly, even a Master’s degree in paper and pulp manufacturing or a Master’s or PhD in paper and pulp science and also with a number of years of experience in industry advising on pulp compositions. The basis of MFP’s argument was that a person akin to the Skilled Paper Chemist would either be employed or would routinely be consulted by a paper pulp product manufacturer with regard to matters of pulp composition.
25. I do not accept MFP’s case as regards the skilled person for the purposes of the 947 Patent because, in my judgment, it would result in the skilled person (or team) in the moulded paper pulp sector having a much greater knowledge of “wet end” chemistry than would have been the case in the real world.
26. In the first place, none of the witnesses who had a first hand knowledge of moulded paper pulp companies suggested that such companies would directly employ a person akin to a “Skilled Paper Chemist”. Rather, their evidence was that, where necessary, such companies would seek external advice from a specialist or from a supplier.
27. Secondly, whilst it was common ground that moulded paper pulp manufacturers do seek specialist external advice on matters of pulp composition, I do not think that means that such external adviser becomes a part of the skilled person (or team) within the art of moulded paper pulp sector or that the common general knowledge of that external adviser becomes part of the common general knowledge of that skilled person (or team). The point is that, so far as the 947 Patent is concerned, Vernacare’s case is that no-one in the moulded paper pulp sector had previously thought of using an additive to provide detergent resistance, so the very fact that it sought specialist advice as to whether there was an additive that would achieve this (possibly an additive outside those already known to those operating in the moulded paper pulp products sector) was inventive. Of course, once a business has sought specialist advice, an answer (here, the use of a fluorocarbon) can be obtained and that answer may (or may not) be obvious to the adviser but that does not mean that the idea to seek advice, let alone the solution provided by the specialist adviser, should be treated as being obvious to the business or to the skilled person within that business. Nor does it justify treating the common general knowledge of the specialist adviser as part of the common general knowledge of the skilled person (or team) operating in the less specialist moulded paper pulp products sector. If it were otherwise, issues of obviousness are (as Mr Hicks points out) highly likely to be infected with hindsight and moreover, with specialist hindsight.

28. For these reasons, I agree with Vernacare’s case that the skilled person for the purposes of both the 793 Patent and the 947 Patent is the person identified by Dr Kellie as “Person 1”.

The common general knowledge

29. The relevant common general knowledge is the information which, at the priority date, would have been widely known to persons skilled in the art (and not just to a limited number of such persons) and would be regarded by such persons as a good basis for further action. It is necessary to show that it was known to all or most such persons in the sense that they had memorised it or that they know that it exists and where to find it if needed. It is not enough that the information was generally available or even that it was referred to frequently.
30. Rather than dealing now with the common general knowledge that the skilled person would have had in the present case, it is convenient to deal first with the terms of the Patents in issue and then to deal with the issues of common general knowledge where they arise in relation to the issues of infringement and validity raised by the parties.

The 793 Patent

31. The 793 Patent is entitled “Receptacle” and has, as mentioned above, a priority date of 31 July 2006.
32. Pages 1 to 2 of the 793 Patent identify the problem which the 793 Patent was intended to solve as follows:

“The present invention relates to receptacles and in particular, but not exclusively, to receptacles for use as wash bowls in hospitals, nursing homes and the like.

Patients who are confined to bed find it difficult or impossible to visit a bathroom in order to carry out basic cleaning functions such as washing the hands and face. In such circumstances, a wash bowl is brought to the patient in bed and is filled with water and cleaning agents (e.g. soap or detergent) to allow the patient to wash. Conventional wash bowls take the form of a generally planar circular base from the periphery of which an upstanding, slightly outwardly-flaring frusto-conical wall projects upwardly. The upper end of the wall is formed into an outwardly-turned overhanging peripheral lip in order to facilitate lifting of the bowl, particularly when it is wet. Such bowls are moulded from common plastics such as polyethylene.

After each use of a wash bowl, it is necessary to clean the bowl thoroughly in order to reduce cross-contamination and cross-infection between patients. However, it is not possible to eliminate such risks completely and even with very thorough cleaning, the risk of cross-infection remains.

It is known to form disposable urine bottles, bed pans and the like from paper pulp which, after use, can be placed in a macerator to reduce the particles to a size where they can be discharged into the normal sewer system. However, if a disposable wash bowl were to be made from paper pulp in the same shape and dimensions as the conventional plastics wash bowls, problems would arise.

In particular, the wash bowl is intended to hold a considerable amount of liquid, of the order of 4 litres, and whilst this would not present too many problems when the bowl is in use, problems are likely to be encountered when it becomes necessary to lift a paper pulp bowl when filled with water. In particular, if the bowl is lifted by the rim, a moulded paper pulp bowl is unlikely to have sufficient strength and would almost certainly rupture.

It is therefore an object of the present invention to provide a bowl, such as a wash bowl, which can be made from disposable material such as paper pulp but which can be lifted easily and without fear or disintegration.”

33. This description is followed by a consistory clause (in substantially the same terms as claim 1) which reads as follows:

“..an upwardly open wash bowl manufactured from maceratable, dried moulded paper pulp comprises a base wall and an enclosing wall extending upwardly from the periphery of the base wall and defining a liquid-receiving volume, the enclosing wall comprising recesses located on opposite sides of the liquid-receiving volume below the upper periphery of the enclosing wall and forming grip means located below the upper periphery of the enclosing wall for facilitating lifting.”

34. On page 2, the 793 patent provides further detail regarding these recesses:

“By providing recesses in the enclosing wall, it is not necessary to rely on a peripheral lip in order to lift the bowl when full and thus the likelihood of disintegration of a filled bowl is greatly reduced. In addition, by having recesses in the enclosed wall, a more rigid structure is produced.”

35. Pages 2 to 3 then go on to set out further consistory clauses including the following (which reflect claims 2, 3, 4 and 11):

“Preferably the said recesses project inwardly, into the said liquid receiving volume.

In one embodiment, the enclosing walls comprises two recesses, located on opposite sides of the liquid-receiving volume.

The recesses preferably comprise an overhanging, finger-engaging lip portion

.....

Each pair of opposed walls preferably comprises two of the said recesses, one located in each of the pair of opposed walls.”

36. Pages 4 to 5 of the 793 Patent refer to 5 figures showing a specific embodiment of the invention. Three of these figures - a perspective view (Fig.1), a side view (Fig.4) and an end view (Fig.5) - are shown below:

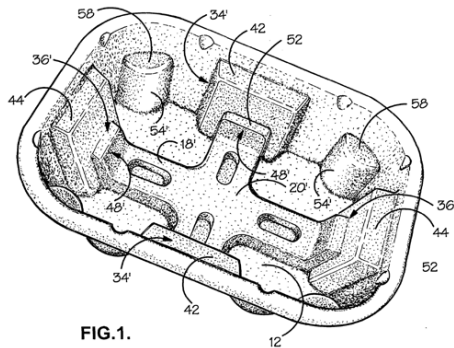


FIG. 1.

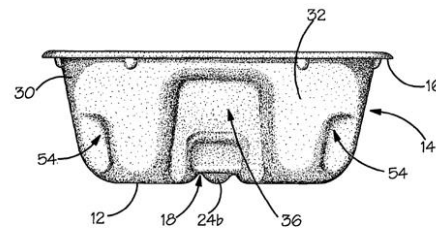


FIG. 5.

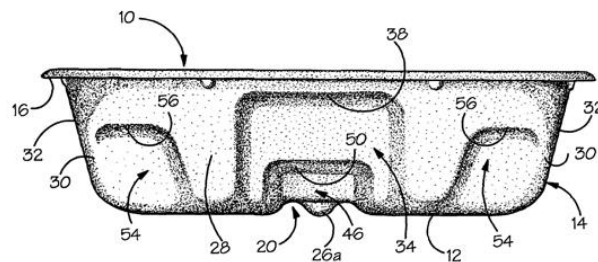


FIG. 4.

37. On page 5, the 793 Patent notes (with cross references to the numbering shown on the above figures) that:

“...each of the side walls 28 and end walls 30 is provided with an inwardly-projecting recess 34.36 respectively... In particular, the uppermost part of each recess is formed into an overhanging lip 38.40 which greatly facilitates lifting and manoeuvring of the wash bowl...”

38. On pages 6 to 7, the 793 Patent notes that the fact that the recesses project inwardly facilitates moulding of the article and also means that the wash bowls can be stacked. It goes on to state that:

“As explained previously, the grip facility afforded by the recesses 34, 36 in opposite walls of the wash bowl 10 greatly facilitate lifting and manoeuvring of the wash bowl particularly when full. In particular, the fingers of a person lifting the wash bowl may be engaged with the overhanging lip 38, 40 of two opposed recessed 38, 40 without risk of disintegration of the wash bowl. In addition, the recesses afford a steady grip, particularly if the wash bowl is wet, as is likely to occur in use.”

39. The 793 Patent then sets out 17 claims of which claims 1 to 12 are said to be infringed by the MFP bowl. A claims chart setting out these claims (and the claims relied on in respect of the 947 Patent) broken into integers and the parties' cases in respect of them was attached to the Reply and Defence to Counterclaim.

Infringement of the 793 Patent

The law

40. The test for infringement of a patent, as analysed by Lord Kitchin in *Icescape v Ice World* [2018] EWCA Civ 2219 at [55]-[67], involves a two-stage process.
41. The first stage is to ask whether the allegedly infringing product falls within any of the claims of the patent as a matter of “normal” construction. This requires the court to determine what the skilled person, reading the relevant claims of the patent with all the common general knowledge available to such person at the relevant priority date, would have understood the words of those claims to mean when read in the context of the patent as a whole (including its summary, detailed description and the teaching it discloses). Ultimately, the normal construction is one which lies somewhere between, on the one hand, a slavish literal interpretation of the words used and, on the other, pure purposiveness.
42. If the allegedly infringing product does not infringe any of the claims when construed normally, the second stage is to ask whether it nevertheless falls within the scope of any of the claims because it varies from the invention (normally construed) in an immaterial way or ways. This approach (often referred to as infringement on the basis of equivalence, or as the doctrine of equivalents) requires the court to ask the three so-called *Improver* questions formulated by Hoffmann J in *Improver* [1990] FSR 181 and reformulated as follows by Lord Neuberger in *Actavis v Ely Lilly* [2017] UKSC 48 at [66]:
- “(i) Notwithstanding that it is not within the literal meaning of the relevant claim(s) of the patent, does the variant achieve substantially the same result in substantially the same way as the invention, i.e. the inventive concept revealed by the patent?
 - (ii) Would it be obvious to the person skilled in the art, reading the patent at the priority date, but knowing that the variant achieves substantially the same result as the invention, that it does so in substantially the same way as the invention?
 - (iii) Would such a reader of the patent have concluded that the patentee nonetheless intended that strict compliance with the literal meaning of the relevant claim(s) of the patent was an essential requirement of the invention?”
43. As Lord Neuberger pointed out at [66]:

“In order to establish infringement in a case where there is no literal infringement, a patentee would have to establish that the answer to the first two questions was ‘yes’ and that the answer to the third question was ‘no’.”

44. I should note that the first and third questions, as reformulated by Lord Neuberger, refer to the “literal meaning” of the claim in issue. However, it is clear that Lord Neuberger did not intend this to be a different (or stricter) construction than the “primary meaning” to which Hoffman J had referred in *Improver*,³ in other words the meaning of the claim on its normal construction.

Infringement on the basis of a normal (purposive) interpretation

45. Although Vernacare’s case is that the MFP washbowl infringes claims 1 to 12 of the 793 Patent, it is clear from the claims chart that the principal issue between the parties is whether the MFP washbowl falls within integers 1.f to 1.k of the 793 Patent. In other words whether the MFP washbowl has:

“an enclosing wall comprising recesses located on opposite sides of the liquid-receiving volume below the upper periphery of the enclosing side wall and forming grip means located below the upper periphery of the enclosing wall for facilitating lifting.”

46. To succeed in showing infringement on a normal (purposive) construction, Vernacare must, therefore, establish that the MFP washbowl has the requisite recesses and that those recesses form grip means for facilitating lifting of that washbowl.

Recesses

47. The construction of this aspect of the 793 Patent was considered by HHJ Birss QC in the EPP Proceedings. In his judgment at [19], he noted that claim 1 used the plural “recesses” rather than the singular “recess”. This, he said, reflected reality in that there needed to be a recess on either side and that these needed to be broadly symmetrical with each other and more or less in the middle of the wall if they were to facilitate lifting as envisaged by the claim. Then, at [21], he found that the recesses had to have sides in order to impart structural rigidity to the bowl (as envisaged by the wording on page 2 of the specification).
48. On this basis, whilst versions 1 and 2 of the defendant’s bowl in the EPP Proceedings fell within claim 1 of the 793 Patent, HHJ Birss QC found that version 3 (pictured below) did not.

³ See *Actavis v Eli Lilly* [2017] UKSC 48 per Lord Neuberger at [65]



49. In this regard, HHJ Birss QC noted that:
- “25 The issue on version 3 is different. All there is in version 3 is a ridge running around the wall. The question is whether this satisfies the requirements of the claim *“comprising recesses located on opposite sides of the liquid-receiving volume below the upper periphery of the enclosing wall and forming grip means located below the upper periphery of the enclosing wall for facilitating lifting”*.”
- 26 Vernacare say that there is nothing in the claim to exclude a case in which the recesses are formed from a single ridge. They are still opposite each other on opposite sides of the wall. EPP say the claim is talking about plural recesses which extend into the bowl. The vertical parts of the recesses provide strengthening. I agree with EPP. In my judgment the sides of these recesses are not optional. They are there to impart rigidity. I do not doubt that the horizontal top parts of recesses can give some rigidity, but in my judgment a skilled reader would understand the patent is talking about recesses with side walls. That is why, it seems to me, the claim is using the plural. There are multiple recesses. It makes sense to talk about them being on opposite sides of the product because of that. Version 3 does not have the claimed recesses and I find it does not infringe.”
50. Given the reference in claim 1 to “recesses” (in the plural) being comprised in “the enclosing wall” (in the singular) and, on page 3, to the fact that the enclosing wall “may comprise two opposed side walls” and that “[e]ach pair of opposed walls preferably comprises two of the said recesses, one located in each of the pair of opposed walls”, I agree with HHJ Birss QC’s findings on the proper construction of claim 1. Indeed, it seems to me to be inherent in the concept of a “recess” that it is a section with a lower surface level bounded on its two sides by a surface at a higher level – as is the case with a trench in a field. This is to be distinguished from a feature such as a ridge or a step where there is no recessed section, but simply a step from a lower level to a higher level.
51. On this construction, it seems to me that the reasoning which led HHJ Birss QC to conclude that the version 3 bowl in the EPP Proceedings fell outside Claim 1 of the 793 Patent applies equally to the MFP washbowl as depicted in Annex 1.

52. Against this, Vernacare argues that there are two important differences between version 3 and the MFP washbowl. First, whilst both feature a sinusoidal ridge or shoulder running continuously around the sides of the bowl, the undulations of the ridge on version 3 were much less pronounced than those of the MFP washbowl and, second, that the undulations on the long sides of version 3 were downwards whereas those on the ridge on the long side of the MFP washbowl are upwards. I cannot see that these differences materially change the position. In my judgment, the MFP washbowl (like version 3 in the EPP Proceedings) does not feature recesses with sides but, instead, features a single ridge running all around the wall of the bowl. I cannot see how this can be said to constitute “recesses” comprised on the enclosing wall. Nor can I see how the fact that the undulations are slightly more pronounced in the MFP washbowl than in version 3 or that the undulation is in an upwards (rather than downwards) direction on the long sides is of any relevance.
53. Accordingly, in my judgment, the MFP washbowl does not have an “enclosing wall comprising recesses located on opposite sides of the liquid-receiving volume” within the meaning of claim 1 of the 793 Patent when construed in the normal (purposive) way.

Grip means to facilitate lifting

54. If, contrary to my conclusion above, the ridge featured on the MFP washbowl had constituted “recesses” within claim 1, the question would arise whether such feature(s) formed a grip means for facilitating lifting of the washbowl.
55. In this regard, I again agree with the comments of HHJ Birss QC at [19] in the EPP proceedings, namely that the issue is simply whether the relevant feature(s) provided a suitable means to facilitate the lifting of the bowl and that “[t]here is no question of intention in this claim”.
56. In my judgment, the ridge does provide a suitable means (indeed, the obvious means) for picking up the MFP washbowl, particularly when that washbowl is reasonably full with some form of fluid. For MFP, Mr Alkin argued that a close up of the geometry of the MFP washbowl shows that the ridge provides a less secure finger grip than the rim and that the ridge is not easily recognisable as a gripping point. He also relied on Mr Visser’s evidence that users would be likely to pick up the washbowl by its rim. However, I do not agree and it seems to me that it is difficult to place much reliance on Mr Visser’s evidence on this point given that he had not been provided with a physical sample of the MFP washbowl. Indeed, as Mr Hicks demonstrated in the course of cross examination, the natural way to pick up the MFP washbowl (particularly when it contains a quantity of fluid that could be up to 5 litres) would be with one’s fingers under the ridge (probably on each of the long sides) and one’s thumbs on the rim.

57. On this basis, had the ridge of the MFP washbowl constituted “recesses” within the meaning of claim 1 on the 793 Patent, then I would have held that it forms a “grip means” facilitating the lifting of the washbowl.

The invalidity squeeze

58. It is convenient to deal at this point with an invalidity squeeze relied on by Mr Alkin on behalf of MFP, because it supports his argument as to why, on a proper construction of claim 1, MFP’s washbowl does not infringe.
59. The basis of the argument is that, for the MFP washbowl to infringe, claim 1 of the 793 Patent would have to be construed in a way that would mean that it would apply to any strengthening rib on the side walls of a wash bowl (and certainly to a rib that was placed roughly mid-way or higher up the side walls) thereby forming a grip means to facilitate lifting of the bowl. Yet, the fact that strengthening ribs were common general knowledge in the moulded paper pulp sector was common ground in the EPP Proceedings and also in the present case.
60. In the present case, the written evidence of Vernacare’s own expert, Dr Kellie, accepted that bowls “with stiffening ribs” were common general knowledge and, whilst the written report of Vernacare’s other expert, Mr Waller, suggested the contrary, Mr Waller in his oral evidence made clear that he thought that strengthening ribs were well known features. This conclusion was also supported by evidence of ribs appearing on products that were accepted to be part of the common general knowledge, including certain plant pots, cup holders, fruit punnets and egg boxes.
61. In the EPP Proceedings, HHJ Birss QC commented (at [50]) that:

“... if the claim was wide enough to cover version 3, then in my judgment there “would be very little in this invention. It would be little more than a bowl with any sort of strengthening ribs...” ”.

It seems to me that the same must apply to the MFP washbowl. As Mr Alkin noted, Mr Waller (Vernacare’s own expert) accepted that the ridge on the MFP washbowl functioned as a strengthening rib and, that the manufacturing process of the product (i.e. the need for it to be capable of being released from the mould), required that any ridge feature would have to protrude outwards and so would, almost inevitably, provide some form of grip means.

62. In my judgment, the squeeze argument succeeds as the skilled person would not construe claim 1 of the 793 Patent as extending to something that was part of his/her common general knowledge. Rather, like HHJ Birss QC at [50]-[51] of his judgment in the EPP Proceedings, he or she would regard the inventive concept of the 793 Patent as being the use of recesses that have sides thereby providing the strength needed if the bowl was to be large enough to be used as a washbowl and which provided a grip means.

Infringement on the basis of equivalence

63. If, as I have found, the MFP washbowl does not infringe the 793 Patent on a normal (purposive) construction of the claims, the next issue is whether it infringes on the basis of equivalence.
64. The answers to the first and second “*Improver*” questions⁴ depend on how one identifies the inventive concept of the 793 Patent. If (as Vernacare submits), the inventive concept is to provide a moulded paper pulp bowl large enough to be used as a washbowl, with a grip means in the form of recesses, it certainly seems arguable that the MFP washbowl, with its sinusoidal ridge achieves substantially the same result in substantially the same way and that this would have been obvious to the skilled person. If, however (as MFP argues), the inventive concept involves the use of recesses with vertical sides then this is less clear. Ultimately, I do not need to resolve this because, in my judgment, Vernacare’s case fails at the third “*Improver*” question and/or because MFP can rely on the so-called *Formstein* defence.
65. The *Formstein* defence (named after a decision in a German case) was considered by Birss LJ in *Facebook v Voxer* [2021] EWHC 1377. He explained the problem at [211] as follows:

“211 So imagine a case in which a claim on its normal construction is valid and not infringed, but a defendant’s device is (i) found to infringe by the doctrine of equivalents but also (ii) found to be obvious over the prior art. Is the right answer that the claim is infringed but invalid because its proper scope, taking into account equivalents, encompasses something obvious over the prior art; or is it valid but not infringed on the footing that part of the law of equivalents mandates that if these are the facts the equivalents doctrine does not expand the claim? Either answer can be justified logically. Indeed, if the matter was free from authority, given the way the scope of the claim is defined in the EPC itself, one might think the invalidity approach is a purer application of the letter of the law. After all it is how equivalents worked when they were taken into account as part of purposive construction before *Actavis*.”

Then, having referred to *Formstein*, he went on at [216] to say (obiter):

“... if I did have to decide the matter, I would hold that the right approach is the *Formstein* approach so that the conclusion if the equivalent device lacks novelty or is obvious is that the claim scope must be confined to its normal construction in that respect. I would do so for two reasons. If the claim on its normal construction is valid, then it seems harsh to invalidate it on this

⁴ See [42] above.

ground. What else could the patentee do but write their claim in a way which, normally construed, did not cover the prior art. So that approach promotes certainty. Secondly, since it is clear that other EPC countries work that way, this is a reason in itself for this EPC state to take the same approach.”

66. I agree with this approach and in my judgment the skilled person is unlikely to construe a claim as applying to a variant (an equivalent) to the inventive concept of that claim where that variant was not inventive but was, rather, a part of that skilled person’s common general knowledge.
67. In the present case, as set out above, I am satisfied that the variant for which Vernacare contends (the sinusoidal strengthening rib running around the side walls of a bowl) is a variant that was not inventive but, rather, was part of the common general knowledge. Accordingly, it seems to me that the *Formstein* defence as explained by Birss LJ in *Facebook v Voxel* must operate in MFPs favour. In the alternative, it seems to me that for the same reasons, the third *Improver* question would be answered in MFP’s favour in that the skilled person would have concluded that the patentee *did* intend a strict compliance with the literal (i.e. normal, purposive⁵) meaning of claim 1, because the claim would otherwise be invalid for obviousness.

Conclusion on infringement of the 793 Patent

68. For these reasons, I find that the 793 Patent is valid but that none of its claims are infringed by the MFP washbowl.

The 947 Patent

69. I turn now to the 947 Patent. This is entitled “Washbowl formed from paper pulp composition”. It too has a priority date of 31 July 2006.
70. Page 1 of the 947 Patent describes the nature of the problem as follows:

“It is known to form disposable urine bottles, bed pans and the like from paper pulp which, after use, can be placed in a macerator to reduce the particles to a size where they can be discharged into the normal sewer system. It would also be desirable to form other articles, notably wash basins, from paper pulp so that they too are disposable. However, whilst the moulding of wash bowls and the like presents few technical problems, it has been found that the presence of soap or detergent in the water carried by the wash bowl renders the moulded paper pulp article very absorbent, with the consequence that the article disintegrates very quickly, thereby rendering it unusable.

Therefore, for receptacles which are likely to come into contact with soap or detergent, it is not possible to form them from disposable paper pulp and instead reusable receptacles, usually formed from plastics, are

⁵ See [43] above

used. These require thorough cleansing after each use, but even with very thorough cleaning, the risk of cross-contamination and cross-infection between patients remains.

It is an object of the present invention to provide a paper pulp formulation which can be made into moulded paper pulp articles which will allow the article to retain its shape and rigidity.”

71. This is followed at page 2 with a consistory clause which is in substantially the same terms as Claim 1 as follows:

“In accordance with a first aspect of the invention, there is provided an article manufactured from:

a mouldable paper pulp composition comprising an aqueous suspension of:

- (a) a base material comprising paper particles; and
- (b) a detergent resistant binding agent for the paper particles, in an intimate and substantially homogenous mix;

wherein the article is an open-topped washbowl;

wherein the detergent resistant binding agent comprises a fluorocarbon;

and wherein the composition further comprises a biocide.”

72. Page 2 expands on this saying that:

“By including a detergent resistant binding agent in the formulation, it has been found that articles formed from the formulation do not disintegrate when they come into contact with soap solution or detergent solution. This makes the formulation particularly suitable for forming disposable wash bowls, which are likely to come into contact with soap solution or detergent solution in use....”

73. Later, on page 2, it is said that:

“... The detergent resistant binding agent is capable of binding the fibres of the paper particles together. The base material may further comprise an additional binder to improve the binding of paper fibres together. The binder may comprise a soluble wax. The soluble wax may be a natural (such as bee's wax) or synthetic (such as Alkyl Ketene Dimer (AKD) wax) wax. Preferably, the binder comprises a natural wax.”

74. And, on page 3, that:

“It has been found that by the addition of a detergent resistant binding agent, the finished article is resistant to the effects of soap and detergent solutions, with the effect that the finished article can withstand such solutions whilst remaining intact.”

75. On page 4 are more details of the detergent resistant binding agent – namely that it “comprises a fluorocarbon” and that, in one embodiment, is available from a supplier called Catomance Technologies Limited.
76. As Mr Alkin points out, what is strange about these passages is that they describe the substance which includes a fluorocarbon and the natural and synthetic wax components and which give resistance to detergents, as “binders” or “binding agents” whereas, as appears to have been common ground, the substances would more properly be described as sizing agents (i.e. substances that impart resistance to penetration by fluids by resisting those fluids’ ability to wet the dry pulp rather than by binding the paper’s fibres more closely).
77. The specification concludes at pages 5 to 6 with a specific embodiment of the invention which appears from the evidence of Professor Hirn to have involved a grossly excessive amount of alum.
78. The 947 Patent then sets out 18 claims of which claims 1, 2, 3, 5, 7, 8, 9, 10, 12, 15 and 17 are said to be infringed by the MFP bowl as shown in the claims chart.
79. Of the claims that are said to be infringed, claims 1, 3, 9 and 12 are said to be independently valid.
- a. Claim 1 is, substantially, as set out at [71] above.
 - b. Claim 3 adds a requirement that the binder comprises a natural or synthetic wax”.
 - c. Claim 9 provides that the detergent resistant binding agent is present “in an amount from 10ml to 100ml per Kg dry weight of base material”.
 - d. Claim 12 adds a requirement that the article further comprises “a sizing agent”.

Construction of the claims of the 947 Patent

Washbowl

80. In its skeleton argument, MFP raised an issue regarding the proper construction of the word “washbowl” in claim 1. However, it seems to me that this issue has been subsumed into the broader point of construction subsequently raised by MFP in its closing submissions (the nature of the inventive concept disclosed by the claim) and I will deal with this issue in the context of that broader point.

Detergent resistant binding agent

81. Another issue of construction raised relating to the meaning of the words “detergent resistant binding agent”. As set out above, this reference is confusing in that the detergent resistance is achieved by a process of sizing rather than of binding. However, it appears that there is no real issue between the parties in

this regard and, in my judgment, the skilled person would not be unduly worried about which particular aspect of the pulp composition (a binder or a sizer) was to achieve that result and would, instead, read claim 1 as talking about the overall composition of the pulp mix. I note, for example, that the claim ends with the words “wherein the composition **further comprises** a biocide...” (emphasis added). Like a fluorocarbon, a biocide is not a binding agent.

The inventive concept

82. The broader issue of construction raised by MFP in its closing submissions (and described by Mr Alkin as the ultimate issue, or the real nub of the dispute) related to the proper identification of the inventive concept of the claims.
83. For Vernacare, Dr Kellie asserts that the inventive concept of the claim is that a detergent resistant washbowl can be made using a fluorocarbon binding agent (which words would be read more broadly, as set out in paragraph [81] above) in the composition from which it is made.
84. For MFP, Mr Alkin argues that Dr Kellie’s formulation of the inventive concept is not supported by the words of claim 1. He argues that the claim is not to a second use (i.e. of an old product for a novel purpose) but rather is in respect of an article that, as a matter of fact, has certain physical features, namely that (1) it is an open topped receptacle (of any size⁶) that is *capable* of being used as a washbowl in the sense that it can hold a volume of water and (being open topped) can be dipped into by the user, (2) it is made from mouldable paper pulp and (3) its pulp composition included a detergent resistant binding agent (again construed broadly) that comprised a fluorocarbon such that the article is in fact detergent resistant.
85. I do not accept Mr Alkin’s argument. In my judgment, the skilled person would not construe claim 1 as applying to any article that as a matter of fact was *capable* of acting as a washbowl in the sense set out above. Whilst it is correct that claim 1 applies to “an article”, it provides that “the article **is** an open topped washbowl” (my emphasis). It does not provide that the article is any article that is capable of being used in the same manner as an open topped washbowl. Given this, and given the terms of the specification generally (including the title of the 947 Patent - “Washbowl formed from paper pulp composition”), the skilled person would attach more significance to the term “washbowl”. Moreover, it seems to me that the skilled person would be well able to distinguish between an article that “is an open topped washbowl” as required by claim 1 and another article, for example a plant-pot or an egg box, that is not an open topped washbowl but that is merely capable of serving the same function (i.e. of containing a volume of water and of being dipped into in order to carry out a wash). The latter would not in any normal sense be referred to as a washbowl.

⁶ He makes the point that, as claim 1 says nothing about the size of the washbowl, the claim could apply a small receptacle used to wash an artist’s brushes.

86. If the claim is concerned with a moulded paper pulp washbowl then, in my judgment, the inventive concept in claim 1 lies in the solution it provides for ensuring that a washbowl made from moulded paper pulp was detergent resistant. That this is the focus of the claim is clear from the Patent's specification which is clearly focussed on solving the problem whereby traditional moulded paper pulp products were not suitable to be used washbowls and, in particular, as washbowls for "patients", because the presence of detergent or soap in the water caused them to disintegrate very quickly.
87. On this basis, I agree with Dr Kellie's characterisation of the inventive concept of claim 1 and I find that that inventive concept is that a detergent resistant washbowl can be made using a fluorocarbon in the composition of the pulp mix. As the description says at page 2 of the 947 Patent, "[t]his makes the formulation particularly suitable for forming disposable wash bowls". I will deal below with whether that solution was indeed inventive.

Infringement of the 947 Patent

88. It is now common ground that the MFP Bowl does fall within the scope of claims 1, 3, 9 and 12 of the 947 Patent. Accordingly, MFP's only defence to infringement in respect of those claims is its invalidity defence.

Invalidity for obviousness

89. Under s.1(1)(b) of the Patents Act 1977, a patent may only be granted in respect of an invention that "involves an inventive step". Here, MFP's case is that the 947 Patent is invalid because its claims did not involve any inventive step (i.e. they were obvious) over the two pieces of prior art referred to above, Shimooka and Sugimoto. MFP does not put forward a case that the claims of the 947 Patent are invalid for being obvious over the common general knowledge.
90. In determining whether the claims would have been obvious to the skilled person in the light of Shimooka and Sugimoto, it is helpful to follow the so-called *Windsurfing/Pozzoli* approach.⁷ This involves the following steps:
- (1)
 - (a) Identify the notional "person skilled in the art"
 - (b) Identify the relevant common general knowledge of that person;
 - (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
 - (3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;
 - (4) Viewed without any knowledge of the alleged invention as claimed, decide whether those differences constitute steps which would have been

⁷ See *Pozzoli SPA v BDMO SA* [2007] EWCA Civ 588 at [23].

obvious to the person skilled in the art or whether they require any degree of invention.

Pozzoli (1)

The skilled person

91. I have already dealt with *Pozzoli* step (1)(a), the identity of the skilled person for the purposes of the 947 Patent.

The common general knowledge

92. As to *Pozzoli* step 1(b), at [23] above I set out in outline the nature of the common general knowledge attributable to the skilled person. With regard to whether the claims of the 947 Patent were obvious over the Shimooka and Sugimoto prior art, I make the following further findings with regard to specific points of the common general knowledge of this skilled person as at 2006.
93. First, it was common general knowledge that moulded paper pulp could be (and was being) used to make a broad range of products, including food containers, cup holders, egg boxes, packaging for products, seed trays, plant pots and a variety of single use medical items such as those offered by Vernacare and its competitor, Cullen. Such medical use items included disposable, one use, urine bottles, bed pans and general purpose bowls (sometimes called vomit bowls). However, it was also known that such products were not detergent resistant and that there was no detergent resistant moulded paper pulp washbowl. Ms Turner-Gardner's evidence was that, on occasion, one of Vernacare's general purpose bowls might be used to wash a patient's hands or face. However, these bowls were too small and, more importantly, did not last long enough to allow a full body wash as they tended to become soggy and were liable to disintegrate, particularly where soap or a detergent was being used or where the nurse using one was called away. As a result, staff tended to use plastic bowls when washing patients.
94. Second, there is no evidence as at 2006 of any product being made from moulded paper pulp whose composition included a fluorocarbon. MFP's expert, Professor Hirn, thought that such products must exist and he pointed to a comment in the TAPPI textbook, "The Sizing of Paper" (3rd ed.), at p.168, that "Fluorocarbons can be applied at the wet end of paper machines, board machines or molded pulp lines". However, he was unable to identify any examples of such a product and none of the other witnesses made any mention of such a product. Significantly, these other witnesses included Mr Visser, MFP's other expert, who had a very wide experience of the moulded paper pulp sector at the relevant time and whose evidence was that "I would consider myself to be the skilled person" in relation to the 793 Patent. If fluorocarbons had been in use in the moulded paper pulp sector in 2006, I would have expected him and Mr Waller to have been aware of that fact and to have referred to it. In

contrast, in the wider paper or paper board industry, fluorocarbons had been widely used to provide resistance to oil, water and grease. A common such use being for grease proof paper used to wrap food.

95. Third, and following on from the previous point, whilst it was known in the wider paper/paperboard industry that adding a fluorocarbon to a pulp mix would make the paper/paperboard more resistant to oil, water and grease, this would not have been part of the common general knowledge of the skilled person within the moulded paper pulp sector. Whilst that skilled person would have an interest in paper pulp products, he or she would not have a particularly broad chemistry background and would be unlikely to question the status quo or look to go beyond the type of additives typically used in the moulded paper pulp product sector.
96. Fourth, even if the skilled person in the moulded paper pulp sector had been aware of the use of fluorocarbon in the wider paper/paper board industry (for example in grease proof paper), that skilled person would not have known that such use of a fluorocarbon would also or was likely to provide detergent resistance. In this regard, none of the publications produced by Professor Hirn came close to establishing the contrary. Indeed, I have doubts as to whether they would have established that a skilled person in the wider paper or paper board industry would have had such knowledge.
97. For example, Professor Hirn referred to a 2004 article by M. von Bahr entitled “*Dynamic Wetting of AKD-Sized Papers*”. Whilst this article was published in the *Journal of Pulp and Paper Science*, I have no real basis for concluding that it must thereby have been part of the common general knowledge – particularly of the skilled person in the moulded paper pulp sector. More importantly, it concerned the known sizing agent AKD and not fluorocarbons.
98. Professor Hirn also referred to the TAPPI textbook mentioned above. This book refers at one point to the fact that fluorocarbons “make paper and paperboard resistant to polar fluids such as water, polar solvents and fatty acids”. Professor Hirn explained the significance of this – namely that a fatty acid is one part of a surfactant and of a detergent and shares their amphiphilic nature (i.e. partly hydrophilic and partly lipophilic). However, in my judgment, this would not have been something known to the skilled person in the moulded paper pulp sector. Professor Hirn also pointed to the fact that the TAPPI textbook refers to testing with isopropanol. However, he accepted that isopropanol is a form of alcohol and, whilst it might be described as a surfactant, it cannot be described as a detergent. Overall, I cannot see anything in the TAPPI textbook which would have led the skilled person in the moulded paper pulp sector to think of trying a fluorocarbon as a solution to the problem of providing a moulded paper product with a resistance to detergents. More fundamentally, whilst Professor Hirn’s evidence was that the contents of textbooks such as the TAPPI textbook would have been known to and/or readily available to the Skilled Paper

Chemist, I am not satisfied that those contents would have been known to and/or readily available to the skilled person in the moulded paper pulp sector.

99. Overall, I agree with Mr Hicks' suggestion that it is only with hindsight that the materials relied on by Professor Hirn would come into play. In my judgment, as at 2006, it was not part of the skilled person's common general knowledge that the addition of a fluorocarbon to a pulp mix used to make a mouldable paper pulp product would make that product detergent resistant. Indeed, by its amended Defence and Counterclaim dated 16 July 2021, MFP had abandoned its claim to the contrary.

Pozzoli (2): the inventive concept

100. As to *Pozzoli* step (2), as set out above, the inventive concept underlying claim 1 of the 947 Patent was that a detergent resistant washbowl can be made using a fluorocarbon binding agent (read more broadly, as set out above) in the composition from which it is made.

Pozzoli (3) and (4), the approach

101. *Pozzoli* steps (3) and (4) require me to compare that inventive concept with the Shimooka and Sugimoto prior art and to ask (without reference to the alleged invention and without using hindsight) whether any differences identified by this comparison involved steps that would have been obvious to the skilled person or whether they required any degree of invention.
102. In doing this, I bear in mind the comments of Kitchin J in *Generics (UK) Ltd v H Lundbeck* [2007] EWHC 1040 (Pat) at [74] that:

“The question of obviousness must be considered on the facts of each case. The court must consider the weight to be attached to any particular factor in the light of all the relevant circumstances. These may include such matters as the motive to find a solution to the problem the patent addresses, the number and extent of the possible avenues of research, the effort involved in pursuing them and the expectation of success.”

103. I also bear in mind the comments of Lord Hodge in *Actavis v ICOS* [2019] UKSC 15 that:

“[70] Sixthly, the motive of the skilled person is a relevant consideration. The notional skilled person is not assumed to undertake technical trials for the sake of doing so but rather because he or she has some end in mind. It is not sufficient that a skilled person could undertake a particular trial; one may wish to ask whether in the circumstances he or she would be motivated to do so. The absence of a motive to take the allegedly inventive step makes an argument of obviousness more difficult.

...

[72] Eighthly, the courts have repeatedly emphasised that one must not use hindsight, which includes knowledge of the invention, in addressing the statutory question of obviousness. That is expressly stated in the fourth of the *Windsurfing/Pozzoli* questions. ...”

104. For Vernacare, Mr Hicks referred me to *Non-Drip Measure v Strangers* (1943) 60 R.P.C. 135 where Lord Russell said, at 142:

“Whether there has or has not been an inventive step in constructing a device for giving effect to an idea which when given effect to seems a simple idea which ought to or might have occurred to anyone, is often a matter of dispute. More especially is this the case when many integers of the new device are already known. Nothing is easier than to say, after the event, that the thing was obvious and involved no invention. The words of Moulton LJ in *British Westinghouse v Braulik* (1910) 27 RPC 209 at 230 may well be called to mind in this connection: ‘I confess’ (he said) ‘that I view with suspicion arguments to the effect that a new combination, bringing with it new and important consequences in the shape of practical machines, is not an invention, because, when it has once been established, it is easy to show how it might be arrived at by starting from something known, and taking a series of apparently easy steps. This ex post facto analysis of invention is unfair to the inventors and, in my opinion, it is not countenanced by English patent law ...”

Mr Hicks also referred me to *Technip France SA’s Patent* [2004 EWCA Civ 381] where Jacob LJ commented that Fletcher Moulton LJ’s statement quoted above was “as true today as when it was first said.”

105. The points made by Lord Russell and Fletcher Moulton LJ are particularly relevant where, as in the present case, the inventive step relied on involves the use of a known substance in a context in which it had not previously been used and where the patentee might legitimately say that, if that use was obvious, why was it not done before.

Pozzoli (3) and (4): the present case

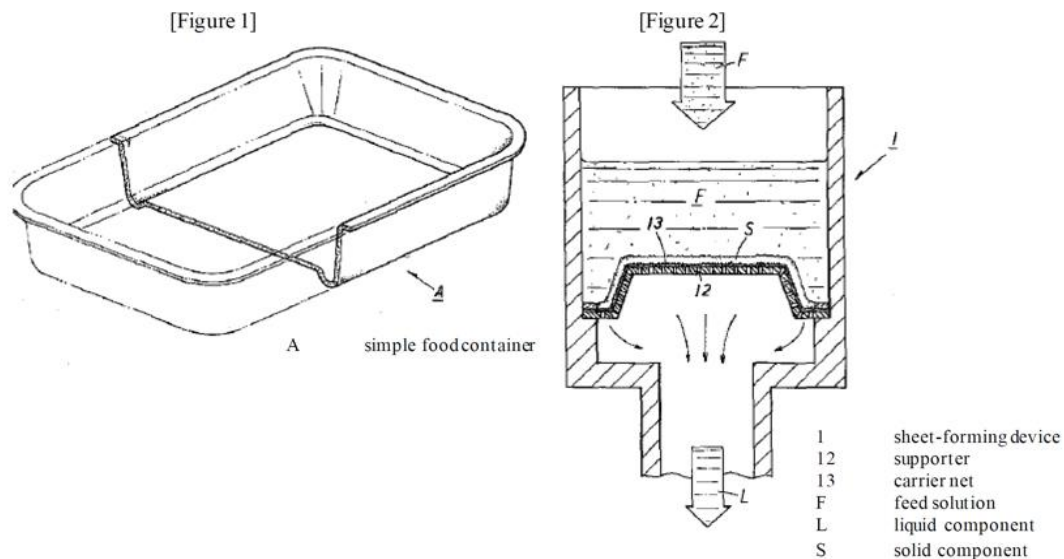
106. Turning to the present case, in addressing *Pozzoli* steps (3) and (4), it is necessary, first, to identify the differences between the inventive concept of the claims of the 947 Patent on the one hand and the Shimooka and Sugimoto prior art on the other.

Shimooka

107. Shimooka was a Japanese patent application published on 30 May 1995 with a title “Simple food container”.
108. The purpose of the invention is set out in paragraph [0001] of Shimooka in the following terms:

“[0001] The present invention relates mainly to a sheet-made container made from raw material mainly consisting of pulp, and in particular to a short-time-use tray-shaped or cup-shaped food container with excellent water and oil repellence that is for use at picnics and parties, etc.

109. An example and the production apparatus were shown in Figures 1 and 2 to Shimooka —



110. After referring in paragraph [0002] to various problems arising from the use of Styrofoam and other synthetic containers, Shimooka continues as follows—

“[0003] Therefore, recently, simple food containers made of paper that can be recycled as used paper have been reviewed. For example, conventionally, tray-shaped food containers are used that are made from sheet-shaped thick paper which is laminated with a resin in order to give water and oil resistance and then pressed. However, with such pressing, it is not possible to, for example, make a complex shape with an internal partition, and only a simple shape with a shallow bottom can be manufactured.

[0004] Therefore, if a manufacturing method using sheet-forming rather than pressing is adopted, it is possible to manufacture a product having a partition inside or a product having a deep bottom, and the degree of freedom in shape can be expanded. However, in a paper container made simply by sheet-forming, as food, etc. comes into direct contact with the container, if water or oil contained in this adheres to the container, there is a problem such that the container absorbs the water or oil, and softens or loses its shape. Namely, instead of having a degree of freedom in shape, a food container made by sheet-forming has the intrinsic property of being vulnerable to water and oil.”

111. At paragraph [0007] Shimooka summarises its solution to these problems:

“[0007] [Constitution of the Invention]

[Means of Achieving the Purpose] Namely, the making of the simple food container according to the first invention of the present application is characterised by being a container formed by feed solution the main raw material of which is pulp being formed into sheets, and by a fluoro-resin being added to this container”

112. In his written report, Dr Kellie argued that what was unclear from these paragraphs was whether Shimooka was concerned with a container made by sheet forming (i.e. paperboard) (as these paragraphs seem to suggest) or from moulded paper pulp (as Fig. 2 and other aspects of Shimooka suggest). Ultimately, in cross examination, he accepted that it probably was teaching something about the application of a fluoro-resin in a product made from moulded paper pulp, albeit not by a traditional technique.

113. Later, at paragraph [0014] Shimooka teaches that where a fluoro-resin is added, the surface of the container has “...excellent water and oil repellence, and can hold food containing water and oil...”. It goes on at paragraph [0018] to refer, somewhat confusingly, to a thermosetting resin being included in the mix. Then, at paragraph [0020] and paragraph [0022], to embodiments featuring the use of a fluoro-resin or of a combination of a fluoro-resin with a wax both of which are said to provide a simple food container with excellent water and oil repellence.

Sugimoto

114. Sugimoto was another Japanese patent application and was published on 15 July 1997. Its title was “Oil-resistance and water resistant simple food container” and its abstract summarised the problem as follows—

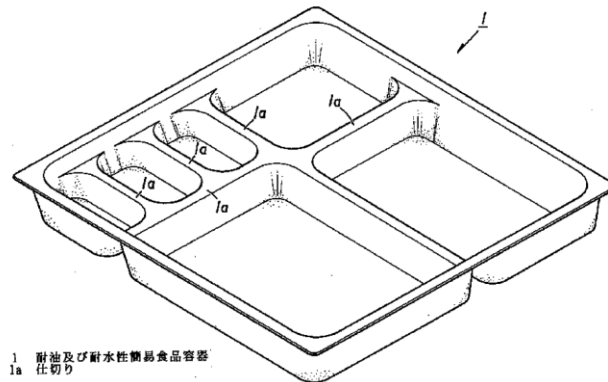
“To provide a simple moulded paper container for food which is not reused and which has excellent oil resistance and water resistance, while reducing the used amount of additives, such as fluorine resin, for improving the oil resistance and water resistance.”

115. At paragraph [0003] Sugimoto noted that various methods had been disclosed to deal with the problem whereby disposable moulded paper food containers soften and collapse when they absorb oil and moisture. However, as set out at paragraph [0004], those ways of raising the level of resistance to oil and water involve the use of fluorine resin as an additive, which, whilst providing “outstanding effects” in terms of oil and water resistance, is fairly expensive.

116. The solution offered by Sugimoto was to form the container by moulding using kenaf whole stem pulp as a raw material (kenaf being a fibre obtained from a plant known as Deccan hemp or Java jute which is grown in the Far East). As

kenaf has excellent oil-repellent and water repellent qualities, Sugimoto taught that its use would greatly reduce the amount of fluorine resin that needed to be used in the pulp stock.

117. Figure 1 provided an illustration of the “oil resistance and water-resistant simple food container” —



Shimooka and Sugimoto as prior art

118. At trial, Mr Alkin noted that nothing really turned on any differences between Sugimoto and Shimooka. Accordingly, whilst he did not abandon his claim of obviousness over Sugimoto, both he and Mr Hicks focussed on the issue of obviousness over Shimooka. I will do the same.

Pozzoli (3) - the differences between Shimooka and the inventive concept of the claim

119. The parties had rather different approaches when comparing Shimooka with the inventive concept in claim 1 of the 947 Patent - reflecting the differences in how they had defined that inventive concept.
120. Having rejected Mr Alkin’s definition of the inventive concept in claim 1, I also reject his argument that the only point of difference between Shimooka and claim 1 lay in the latter’s provision for the inclusion of a biocide (which, as he said, was part of the common general knowledge of the skilled person and, therefore, obvious). Instead, on the basis of the inventive concept which I have found underlies claim 1, it seems to me that there are further differences in that Shimooka discloses the use of a fluoro-resin to give oil and water resistance to a “simple food container”, whereas claim 1 discloses the use of a fluorocarbon to give detergent resistance to a washbowl.

Pozzoli (4) - do those differences constitute steps that would have been obvious to the skilled person?

121. It is common ground that, as a matter of fact, a container made according to the invention disclosed in Shimooka (i.e. where a fluorocarbon/fluoro-resin was

included in the composition) would have been detergent resistant. However, Shimooka contains no reference to detergent resistance or to washbowls. The question, therefore, is whether the skilled person with the common general knowledge referred to above would, on reading Shimooka, have seen the step from using a fluororesin in a food container to achieve oil/water resistance to using a fluorocarbon in a washbowl to achieve detergent resistance as inventive or as obvious.

122. In my judgment, the skilled person reading Shimooka as at 2006 would have viewed that step as inventive.
123. As a starting point, the skilled person would have read Shimooka with interest and would have seen that it disclosed the use of a fluorocarbon to provide oil and water resistance in a food container. I do not think that the skilled person would have been put off by the confusion as to whether Shimooka was talking about a food container made by sheet forming rather than by moulding. Nevertheless, it seems to me that the skilled person in the moulded paper pulp sector had no particular need to think more about oil or water resistance and, given that person's common general knowledge, no reason to think that the use of a fluorocarbon to make a food container resistant to water or oil may be relevant to the issue of making a detergent resistant washbowl from moulded paper pulp. There was, in effect, nothing in Shimooka that would have led the skilled person in the moulded paper pulp sector to try adding fluorocarbon to the pulp mix as a means to address that issue, let alone to the conclusion that to take such a step was obvious. Such a step would require the skilled person to take what to him or her would have been an inventive step. It seems to me that having read Shimooka with interest the skilled person (being uninventive) was likely to conclude (in the words of HHJ Birss QC in the EPP Proceedings at [41]) that "I have read it with interest, but I am not interested".
124. In the present case, as mentioned above, MFP has not put forward a case that the inventive claim of the 947 Patent was obvious over the common general knowledge. In my judgment, for the reasons I have already set out, it was right not to do so. Indeed, it seems to me that this is a case where it would be legitimate to argue that, if the claimed invention had in fact been obvious, why had no one done it before. In this regard, it was not suggested that the addition of a fluorocarbon was or was thought to be technically difficult. Moreover, there were other solutions that could have been adopted including, for example, to use polymeric surface barrier coatings (e.g. TetraPak cartons) as mentioned by Dr Kellie or to thicken the exposed surface areas of the product or simply to use one non detergent resistant bowl inside another. In his closing, Mr Alkin commented that Vernacare's approach was "entirely conventional" in that its documents showed that it had sought advice from a paper chemicals company called Catomance (presumably the company mentioned on page 4 of the 947 Patent as a supplier of the detergent resistant binding agent used for one embodiment of the invention). However, as I have already indicated, the fact that Vernacare, a manufacturer of moulded paper pulp products, sought such

specialist advice with a view to achieving detergent resistance does not make the solution obvious.

125. Against this background, I can see nothing in Shimooka or Sugimoto that would have made it obvious to the skilled person to add a fluorocarbon to the pulp mix in order to make a moulded paper pulp washbowl.

The validity of the subsidiary claims of the 947 Patent

126. For the reasons set out above, I have found that claim 1 of the 947 Patent was valid. Vernacare also argues that claims 3, 9 and 12 (as described in paragraph [79] above) are independently valid.
127. As to claims 3 and 12, it was common ground that the addition of natural or synthetic wax and the use of a sizing agent in the pulp composition were common general knowledge. On this basis, MFP's pleaded case is that, when implemented in the light of that common general knowledge, claim 3 is obvious over Sugimoto and claim 12 is obvious over both Shimooka and Sugimoto. However, as Mr Hicks points out, claims 3 and 12 actually claim the addition of these materials to an article as claimed in claim 1. In other words in combination with a fluorocarbon - combinations which he asserts are inventive in themselves. I can see that this may suggest that claim 3 and claim 12 are not obvious. However, on the evidence as it stands, this is because they involve combinations that include a fluorocarbon. Accordingly, their validity would appear to be dependent upon (and not independent of) claim 1. However, given my conclusions regarding claim 1, nothing seems to turn on this.
128. Claim 9 was for an article as claimed in any of the preceding claims "wherein the detergent resistant binding agent is present in the mouldable paper pulp composition in an amount between 10ml to 200ml per Kg dry weight of base material." In closing, MFP's case was that because the effects of adding fluorocarbon would depend on the fluorocarbon content of the liquid additive, which was not specified in the claim, the claimed range was arbitrary and obvious on the basis discussed in *T939/92 AgrEvo/Triazoles* [1996] EPOR 171. However, as MFP's pleaded case is simply one of obviousness over Shimooka and Sugimoto, I do not think that this is an argument open to MFP. So far as I can discern, there is nothing in Shimooka or Sugimoto to render claim 9 obvious.
129. On this basis, it seems to me that Vernacare's claim based on claims 3, 9 and 12 must also succeed.

Long felt want/commercial success

130. In support of its argument that the relevant claims of the 947 Patent were inventive, Vernacare relies on secondary evidence relating to long felt want and commercial success. Such evidence is generally only needed where an analysis of the primary evidence has not produced a clear answer to the issue of

obviousness. As I have concluded that the relevant claims of the 947 Patent were not obvious, I will deal with the issues of long felt want and of commercial success relatively briefly.

131. In this regard, I will use the well-known non-exhaustive summary of relevant factors provided by Laddie J in *Haberman v Jackel* [1999] F.S.R. 683 (and described by Jacob LJ in *Schlumberger v Electromagnetic Geoservices* [2010] EWC Civ 819, at [80] as a masterpiece). In *Haberman*, at [63]-[64], Laddie J stated that:

“The mere existence of large sales says nothing about what problems were being tackled by those in the art nor, without more, does it demonstrate that success in the market place has anything to do with the patented development nor whether it was or was not the obvious thing to do. After all, it is sometimes possible to make large profits by selling an obvious product well. But in some circumstances commercial success can throw light on the approach and thought processes which pervade the industry as a whole. The plaintiffs rely on commercial success here. To be of value in helping to determine whether a development is obvious or not it seems to me that the following matters are relevant:

- (a) What was the problem which the patented development addressed? Although sometimes a development may be the obvious solution to another problem, that is not frequently the case.
- (b) How long had that problem existed?
- (c) How significant was the problem seen to be? A problem which was viewed in the trade as trivial might not have generated much in the way of efforts to find a solution. So an extended period during which no solution was proposed (or proposed as a commercial proposition) would throw little light on whether, technically, it was obvious. Such an extended period of inactivity may demonstrate no more than that those in the trade did not believe that finding a solution was commercially worth the effort. The fact, if it be one, that they had miscalculated the commercial benefits to be achieved by the solution says little about its technical obviousness and it is only the latter which counts. On the other hand evidence which suggests that those in the art were aware of the problem and had been trying to find a solution will assist the patentee.
- (d) How widely known was the problem and how many were likely to be seeking a solution? Where the problem was widely known to many in the relevant art, the greater the prospect of it being solved quickly.
- (e) What prior art would have been likely to be known to all or most of those who would have been expected to be involved in finding a solution? A development may be obvious over a piece of esoteric prior art of which most in the trade would have been ignorant. If that is so, commercial success over other, less relevant, prior art will have much reduced significance.
- (f) What other solutions were put forward in the period leading up to the publication of the patentee’s development? This overlaps with other

factors. For example, it illustrates that others in the art were aware of the problem and were seeking a solution. But it is also of relevance in that it may indicate that the patentee's development was not what would have occurred to the relevant workers. This factor must be treated with care. As has been said on more than one occasion, there may be more than one obvious route round a technical problem. The existence of alternatives does not prevent each or them from being obvious. On the other hand where the patentee's development would have been expected to be at the forefront of solutions to be found yet it was not and other, more expensive or complex or less satisfactory, solutions were employed instead, then this may suggest that the ex post facto assessment that the solution was at the forefront of possibilities is wrong.

(g) To what extent were there factors which would have held back the exploitation of the solution even if it was technically obvious? For example, it may be that the materials or equipment necessary to exploit the solution were only available belatedly or their cost was so high as to act as a commercial deterrent. On the other hand if the necessary materials and apparatus were readily available at reasonable cost, a lengthy period during which the solution was not proposed is a factor which is consistent with lack of obviousness.

(h) How well has the patentee's development been received? Once the product or process was put into commercial operation, to what extent was it a commercial success. In looking at this, it is legitimate to have regard not only to the success indicated by exploitation by the patentee and his licensees but also to the commercial success achieved by infringers. Furthermore, the number of infringers may reflect on some of the other factors set out above. For example, if there are a large number of infringers it may be some indication of the number of members of the trade who were likely to be looking for alternative or improved products (see (iv) above⁸).

(i) To what extent can it be shown that the whole or much of the commercial success is due to the technical merits of the development, i.e. because it solves the problem? Success which is largely attributable to other factors, such as the commercial power of the patentee or his license, extensive advertising focusing on features which have nothing to do with the development, branding or other technical features of the product or process, says nothing about the value of the invention."

132. As regards factors (a) and (b) set out by Laddie J in *Haberman v Jackel*, the problem addressed by the patent was how to produce a washbowl from moulded paper pulp that would be detergent resistant. There had been no such detergent resistant product since moulded paper pulp products had been introduced in hospitals and care facilities in the 1960s.

133. As regards factors (c) to (d), I am not convinced that the lack of a detergent resistant washbowl was seen as a significant problem as at 2006. I accept that,

⁸ Note - this appears to be a reference to sub-paragraph (d) of Laddie J's list of factors.

because the plastic washbowls then used needed to be properly cleaned between uses, their use did involve, in theory at least, a somewhat greater risk of cross infection than the use of a disposable moulded paper pulp product. However, the only evidence of possible sources of infection in such washbowls seemed to have been contained in an Aston University report from October 2006 which I have not seen but was cited by Ms Turner-Gardner in later presentations. There is nothing earlier than this and no evidence as to of any *actual* infections attributable to plastic washbowls.

134. Nor is there documentary evidence to support Vernacare's case on long felt want. Of the various documents produced by Vernacare, only one pre-dates the priority date of the 947 Patent and that is a 2004/05 Annual Report from the Trafford Health care NHS Trust which contains an article stressing the need, in general terms, to "Think Clean". It does not refer to any problem with washbowls or infections or to the need for a disposable moulded paper pulp replacement washbowl. The rest of Vernacare's documents post-date 2006 and are either from Vernacare itself or are from or refer to the Trafford Health Trust where Ms Turner-Gardner worked. The value of this latter type of document is limited in that, by that stage, Ms Turner-Gardner was (as she herself stated), something of a brand ambassador for Vernacare and attended conferences at Vernacare's request for which she was paid expenses. Overall, as Mr Alkin pointed out, the documents relied on by Vernacare were more consistent with Vernacare seeking to educate the market about why users should want its (by then) existing product rather than evidencing a long-felt want of those users for such a product.
135. Further, although Ms Turner-Gardner gave evidence of focus groups discussing issues of infection control, including why a new washbowl was needed, I have no way of knowing for how long such discussions had been running, nor whether those discussions went wider than the Trafford Healthcare NHS Trust groups in which Ms Turner-Gardner was involved. Nor do I know who provided the impetus for such discussions. Indeed, I note from Mr Van Est's evidence that Vernacare representatives were encouraged to find out what products were in use in hospitals with a view to Vernacare developing a moulded paper pulp replacement. On this basis, it seems quite possible that the impetus came from Vernacare rather than from the users themselves.⁹ Certainly no other evidence has been produced of requests being made for a solution to the problem nor of any other teams seeking to solve it. In fact, as Mr Alkin points out, Ms Turner-Gardner's evidence was that there was no general understanding amongst nurses that there was a problem with the plastic washbowls.
136. I have already considered Laddie J's factors (f) and (g) - (see [124] above).

⁹ Although Mr Van Est was employed by Vernacare from 2007 to 2010, there is no reason to think that its practice in 2006 was any different.

137. As regards factor (h), Vernacare’s Schedule of Commercial Success shows UK sales of its detergent resistant washbowl rising from 1,024,600 units in 2007 to a high of 27,699,400 units in 2018. For Vernacare, Ms Dobson’s evidence was broadly in line with this and she described these sales as “outstanding”. MFP’s witness, Mr Hogarth, accepted that Vernacare’s sales were “reasonable”. Vernacare’s Schedule also provides details of the relatively small sums that it estimates were expended on advertising and promoting this particular product (being £33,200 in 2007 and £10,000 a year thereafter).
138. A difficulty with this is that, whilst these sales do look healthy, I am not aware of the profit margin. Nor do I have any comparables or any idea of the size of the market overall. A further problem is that it is very difficult to ascertain to what extent units sold by Vernacare reflect the originality of its invention as opposed to its commercial power in the market and the success of its marketing – a point that is reflected in Laddie J’s factor (i) above. Certainly, the evidence suggests that Vernacare has a very effective marketing team which rather clouds the extent to which the success of its washbowl can be said to support the argument that its invention was inventive.
139. Putting all of this together, the evidence suggests that Vernacare’s product has been a success. However, as set out above, I am not convinced that I can find that this of itself supports Vernacare’s case regarding a lack of obviousness. The evidence regarding long felt want seems to me to be even less supportive and I do not find it of any assistance in this case.

Conclusion

140. For the reasons set out above, I find that:
- a. The 793 Patent is valid but is not infringed by the MFP washbowl; and
 - b. The relevant claims of the 947 Patent are valid and are infringed by the MFP washbowl.

ANNEX 1 – The MFP washbowl

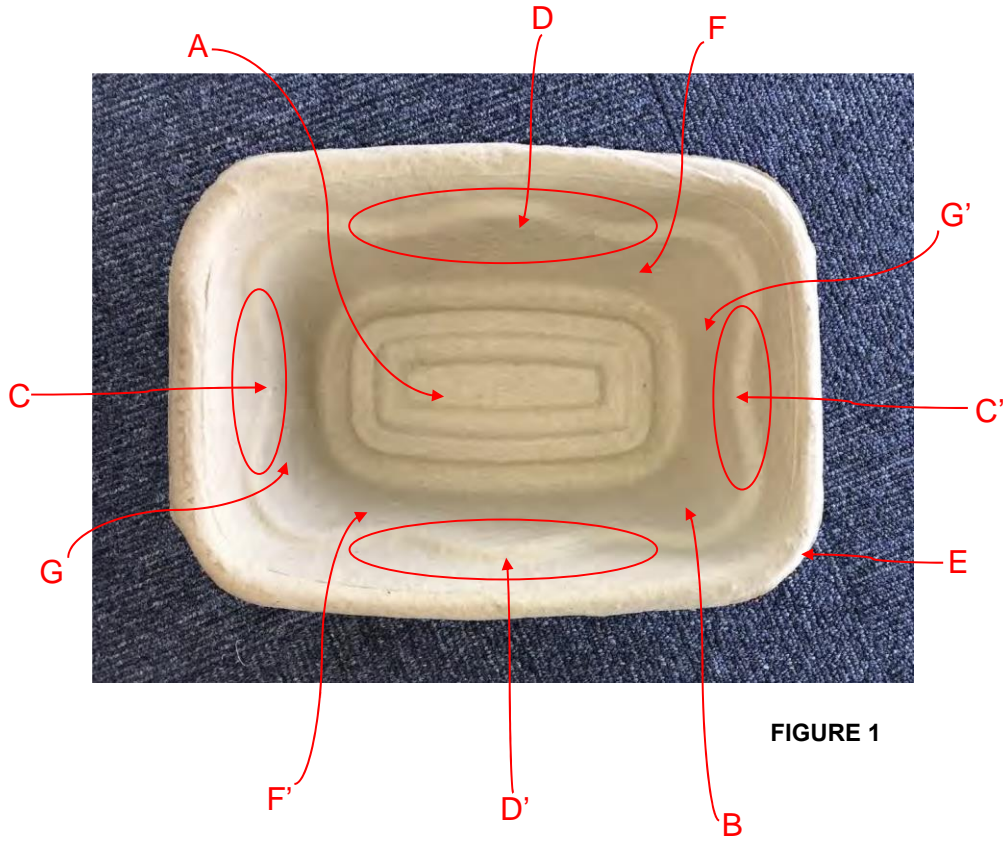


FIGURE 1

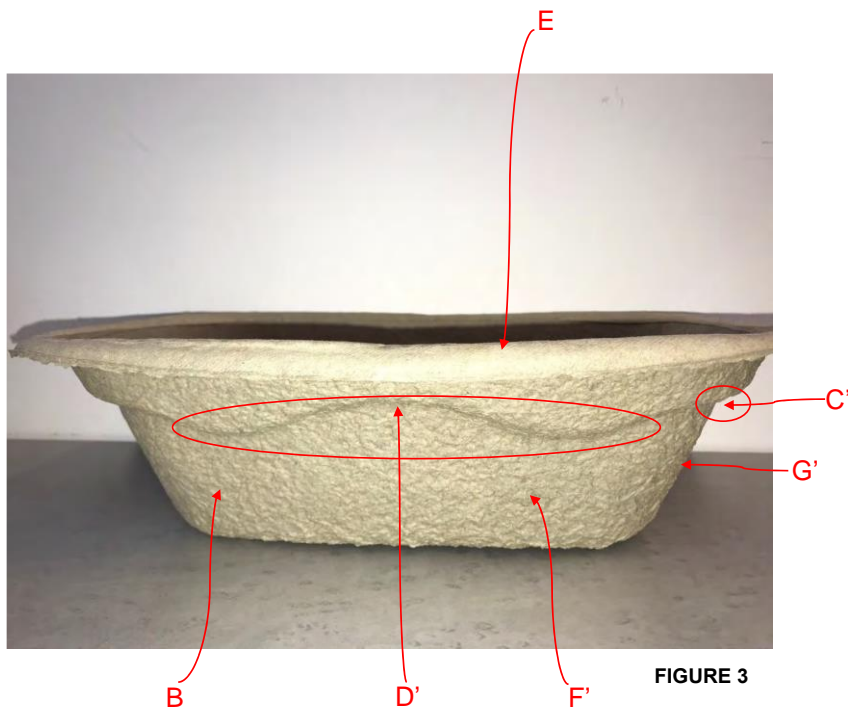


FIGURE 3

